

JOURNAL OF CALENDAR REFORM

EDITORS

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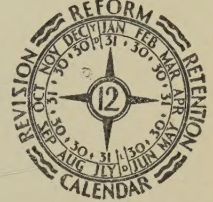
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ACTION OF THE CHURCHES

By HENRY SMITH LEIPER

*Executive Secretary, American Section of the Universal Christian Council
for Life and Work*

RESOLUTION

*Adopted by the Universal Christian Council, Geneva, Switzerland,
August 13, 1932*

WHEREAS, the Universal Christian Council in its Eisenach meeting (1929) expressed its desire for a careful survey of the projected change in the calendar as affecting the stabilization of Easter, and

WHEREAS, the League of Nations has asked the churches to state their views on the stabilization of Easter as a part of a general movement toward calendar reform, and has requested that religious authorities state before April, 1933, what action they propose to take in this matter:

THEREFORE BE IT RESOLVED, that the Universal Christian Council on Life and Work hereby directs its Research Department to study the subject, for the information and guidance of its membership, and to consult the churches of the nations regarding their view of desirable changes;

THAT the Council expresses its appreciation of the interest taken in this subject by the League of Nations, and its desire to cooperate fully with the League and with other bodies religious and secular in the consideration not only of Easter stabilization, but also of the general subject of calendar reform;

THAT the Council recommends therefore to its program committee that the subject be given a place on the agenda of the Universal Christian Council in 1934, and

THAT a copy of this resolution shall be forwarded to the League of Nations as an indication of the action which the Council proposes to take.

TWO related lines of action led to the serious consideration this summer of Calendar Reform by the Universal Christian Council for Life and Work meeting in Geneva, Switzerland. The first of these was a notable vote of the Council at its meeting in Eisenach, Germany, in 1929. By resolution the Council then declared that the churches should con-

tribute to a judicious choice between the proposed systems of calendar simplification, and declared itself willing to participate in future studies and discussions. In conformity with this action, the Council has from time to time welcomed representatives of Calendar Reform movements, and devoted several plenary sessions to the consideration of the subject.

The second thing that led to this summer's renewed and more definite action was the conviction of Dr. Cadman, chairman of the American Section of the Council, Dr. Cavert, General Secretary of the Federal Council of the Churches of Christ in America and a member of the Executive Committee of the Section, and several other officers and members that the time had come for non-Roman churches to make a much more definite and conclusive study of a question which has steadily gained attention from civic, educational and governmental bodies throughout the world.

To this end these officers of the American Section of the Council for Life and Work joined with the writer, who happens to be executive secretary of that body, in inviting Miss Elizabeth Achelis, president of The World Calendar Association, to attend the annual meeting of the Council in Geneva as a special guest of the American Section. In doing this they had in mind the fact that on other occasions, Mr. Cotsworth, secretary of the International Fixed Calendar League, had come before the Council to present arguments for the type of reform advocated by him and his associates; the fact that the Church of Rome had tentatively promised to call an Ecumenical Conference on the subject and was rumored to have a definite date for the conference in mind; and the further fact that no conclusive or representative action has been taken by the non-Roman churches with respect to the request of the League of Nations that the religious bodies of the world study Calendar Reform with special reference to the fixing of the date for Easter.

Miss Achelis very kindly agreed to change her personal plans and make the trip to Geneva, and at the same time indicated her deep interest in an impartial and comprehensive study of the whole question by the churches constituent to the Universal Christian Council, if possible through the Research Department of the Council which she deemed uniquely qualified for such an undertaking.

Accordingly, when the Council assembled in the Hotel Beau-Sejour, Champel-Geneva, on August 10th, the matter of Calendar Reform was on the agenda in the form of a resolution submitted by Dr. Cadman, Dr. Cavert, and the writer.

Before any discussion of the points of view taken by the members of the Council toward this important matter, a few words may be in order concerning the nature of the Council, what it represents, how it functions, and what personalities are found in its leadership. Most of the readers of this Journal will recall that in 1925, on the special invitation of the

late Archbishop Söderblom and the Swedish Government, there met in Stockholm the most representative church gathering since the days of the early and undivided Church. Over a thousand officially constituted delegates were present from practically every national or denominational body calling itself Christian. Although cordially invited and urged to attend, the Roman Curia felt compelled to abstain from participating, and was therefore the only major Christian body not represented. The Conference at Stockholm considered many aspects of the task of the churches, with special reference to the possibilities of unity in life and work if not in order and administration. It stressed the social and ethical aspects of the Christian religion, and sought collective means whereby a more thorough application of the ideals common to all Christians should be realized. To this end, and in order that from time to time similar world conferences might be effectively organized, the Conference created a Continuation Committee which is now known as the Universal Christian Council for Life and Work. It has five relatively autonomous sections; Eastern Orthodox, British, Continental European, American and Churches of Other Lands. These are linked in various ways with the official and administrative bodies of the churches in the respective countries.

It may, therefore, be said that the Council, which maintains its head office in Geneva together with its research department—sometimes called the International Christian Social Institute—is an embryonic world federation of churches—Orthodox, Anglican, Protestant, and Reformed.

The Council, strictly so-called, is composed of one hundred members. Its Presidents are: The Archbishop of Canterbury, Dr. S. Parkes Cadman, Archbishop Germanos, and Dr. H. Kapler. The Chairman of the Council and of its Executive Committee is Dr. Bell, Bishop of Chichester, and concurrently secretary of the Lambeth Conference (Anglican). It numbers among its active leaders the outstanding churchmen of the day; e.g., The Bishop of Denmark, Dr. Ammundsen; Dr. Siegmund-Schultze and Dr. Stange of Germany; former Minister of Labor, Prof. Slotemaker de Bruine of Holland; Prof. Wilfred Monod of France; Dr. P. T. R. Kirk of London, the Bishop of Lichfield, and Principal Garvie of Hackney and New College, University of London; Prof. Choisy of the University of Geneva and Dr. Adolf Keller of Switzerland.

The Council functions through a permanent secretariat in the Sections and at Geneva, its General Secretary being Dr. Henry L. Henriod, a Swiss, the Chairman of its Administrative Committee being Dr. William Adams Brown of New York, and its Director of Research Dr. Hans Schönfeld of Germany. The latter is a young man of great ability who has had considerable experience in research work for the German social agencies and the Government. He has on his staff Dr. Ehrnstrom, of Sweden, and several other experts supplied by different national groups. The Advisory Com-

mittee on Research includes such well-known individuals as Dr. F. Ernest Johnson, Executive of the Department of Research and Education of the Federal Council of Churches in America, Dr. Georges Thèlin of the International Labor Bureau, Geneva, Dr. Martin Dibelius, Dr. A. Titius of Germany, Dr. E. Gounelle of France, Dr. V. A. Demant of England, and Dr. Merle Davis, Director of Research, International Missionary Council.

After this rather extended explanation of what the Council is and how and through whom it works, it is time for more facts concerning the action taken at Geneva regarding calendar reform, and what led up to it. The discussion of the matter, both informal and formal, brought out considerations having weight with the members of the Council; for example, the undisputed desirability of a fixed Easter date universally recognized and observed. To accomplish this it is obvious that more study must be given the subject by the churches and united action is imperative if any real expression of Christian opinion is to have a place in settling the question.

To those who felt that the matter of calendar reform was not one essentially concerning the churches it was pointed out that such has certainly not been the case in past years; that the religious convictions of many people made changes for them a matter of deep concern, in which they sought the guidance of the churches; and that the secular bodies dealing with the question had all voluntarily recognized the primary right of religious bodies to be consulted regarding calendar changes.

In a day when many churchmen claim that all of life is being secularized, it seems hardly consistent for them to turn a deaf ear to the request of the League of Nations for official church opinion on a matter of such great importance to the world—both secular and religious.

It was pointed out that India has many different calendars, the unification of which will be possible through world reform of the calendar and not otherwise; similarly that China, having recently adopted the Western calendar, would welcome its simplification and unification.

Mention was likewise made of the significant, although frequently ignored, improvement to be had in church statistics on the basis of a regulated year, an improvement not unlike that to be anticipated in business and governmental as well as medical, actuarial and agricultural records.

Again, it was evident in the discussions, and admitted freely by all, that the implications of the proposed calendar changes are not as yet understood by the churches, nor have the relative merits of the new calendars proposed been examined on a world scale.

The Lord Bishop of Chichester, Chairman of the Council, pointed out that the churches had been definitely asked for a consensus which at present plainly does not exist; that the research department of the Council is the only existing medium for the making of such a study in the non-Roman church world; and that such a study as was proposed would, in his

view, have values of many kinds even beyond the immediate subject of the study itself, important as that is.

Bishop J. L. Nuelsen of the American Methodist Episcopal Church, resident in Zürich, Switzerland, made the official presentation of the resolution and in support of it pointed out that a revised calendar would have to be adopted in a year which begins on Sunday, and that this naturally occurs in 1933 and again in 1939. He added that after that, January 1st will not fall on Sunday under the present calendar until 1950. He desired that the study be made and that after its results had been procured and communicated to the League of Nations, the whole matter should be carefully considered by the Universal Christian Council at its meeting in 1934.

His Beatitude, the Bishop of Novi Sad, Jugo-Slavia, leading delegate of the Eastern Orthodox Church, in speaking to the resolution, said that while he had not been authorized to vote on the matter for his Church, he was personally in favor of an official study by the Council and thought that it ought to be promptly undertaken. There was but one negative vote when the resolution came to final consideration. That was cast by the delegate from Sweden who indicated that his opposition was not to reform of the calendar in itself, but rather because he did not think the subject one of primarily religious concern. Among countries represented by affirmative votes were: England, Scotland, India, the United States, France, Germany, Switzerland, Holland, Denmark, Jugo-Slavia, Austria, Greece, Bulgaria, Czecho-Slovakia and Poland.

Following the Council meeting on August 13th, when the resolution authorizing the study was adopted, Dr. Schönfeld, Director of Research, outlined a careful and comprehensive plan of procedure by which the desire of the Council will be met. A survey of the main proposals for calendar reform—primarily those of The World Calendar Association and the International Fixed Calendar League—will be made and a summary prepared in three languages for submission to the churches. This will be accompanied by a careful questionnaire. The Advisory Committee on Research will deal with the answers to this and the draft report based on them will be presented to the League of Nations by March 25th, 1933.

In the light of the tentative general report submitted to the League, the churches will be asked to make their final reports. An analysis of the results of these, by the department and its advisory committee especially assembled in Geneva for the purpose, will be brought before the Executive Committee of the Council in September, 1933, and preparations then made for the placing of the matter on the agenda of the enlarged meeting of the Council now scheduled for the summer of 1934.

This action would seem to mark a very definite step forward in calendar reform and paves the way for decisions of the utmost importance in the not distant future.

ASTRONOMERS' VIEWPOINTS

By CHARLES D. MORRIS

Editor of the Journal of Calendar Reform

OPPORTUNITY to review the opinions of the world's leading astronomers on the subject of calendar reform was offered by the meeting at Cambridge, Mass., early this month of the Fourth General Assembly of the International Astronomical Union. The countries represented were: Argentine, Australia, Austria, Belgium, Canada, China, Czecho-Slovakia, Denmark, Esthonia, France, Germany, Great Britain, Greece, Holland, India, Italy, Japan, Poland, Portugal, Roumania, Russia, South Africa, Spain, Sweden, Switzerland and the United States.

The distinguished membership of the Union includes nearly a score of names eminent in calendar reform, among them Madame Flammarion of France, who has loyally carried on the work begun by her distinguished husband on behalf of the 12-month equal-quarter revision of the calendar; Professor Eginitis of Greece, a consistent exponent of the same reform; Professors Stroobant of Belgium, Nijland of Holland and Lundmark of Sweden, all advocates of the plan known in America as The World Calendar. As historians and students of the calendar, there are also Przybyllok of Germany, Fotheringham of England, Campbell and Crawford of America, Hagen of Italy, Dyson and Phillips of England. While the names in the latter list are not actually committed to any plan of calendar reform and generally have confined themselves in their writings to the impartial attitude of a scientific chronicler, they are all outspokenly opposed to any 13-month revision of the present calendar.

Conversations with the delegates present at the Cambridge meeting showed that they were in general satisfied to let the position of the International Astronomical Union remain on the sound basis adopted by the organization in 1922, when a formal study of calendar reform was made by a special committee, known as "Commission 32." This commission, after extensive study and investigation, made the following recommendations:

- (1) Adoption of a perpetual calendar of 52 weeks, plus one or two extra days.
- (2) Transfer of January 1 to the date now occupied by December 22.
- (3) Division of the year into four quarters of 91 days each, arranged into three months of 31, 30 and 30 days respectively, without raising any obstacle to the use of auxiliary calendars dividing the year into periods of 14 or 28 days.

Recommendations 1 and 3, it will be seen, correspond exactly to the plan advocated by The World Calendar Association in America, by the

Swiss and Greek governments in Continental Europe, and by the Rational Calendar Association in England. The second recommendation of the Commission, while regarded as of great importance by astronomers, has been rejected by the League of Nations and by most advocates of calendar reform as too disturbing a change for the possible benefits to be derived.

American astronomers are advocates of calendar reform in the proportion of about 7 out of 10, according to recent questionnaires, and they prefer the 12-month revision to any 13-month plan by an overwhelming majority. British astronomers are more conservative, many of them confining their immediate demands to the stabilization of Easter, which is an ever-pressing question in England owing to the disastrous effect of the wandering Easter date on educational schedules, on the meetings of learned societies, and on courts and legislative sessions. German and Scandinavian astronomers swing preponderantly toward the 12-month equal-quarter revision, which has lately been ably advocated in Sweden by Professor Arrhenius, and by Professor Lundmark, director of the Royal Observatory at Lund.

In France, astronomical opinion for many years has been largely dominated by Professor G. Bigourdan, who was the chairman of the International Astronomical Union's Commission 32 in 1922, and who championed the 12-month equal-quarter revision consistently until his death.

Spanish and Italian astronomers have given very little attention to the question of calendar reform, but oppose any 13-month revision, as do representatives of South Africa, China and Japan. In Canada Professor Kingston, former president of the Royal Astronomical Society of Canada, has been active in support of The World Calendar.

The opinion of British astronomers, as summed up by the Rev. T. E. R. Phillips, secretary of the Royal Astronomical Society, was as follows: "The 13-month plan of calendar revision has, of course, been actively propagandized for many years in England. But the dislocation involved in such a readjustment is so considerable that it will never receive any important support from Great Britain. From our viewpoint, the most immediately important reform is the stabilization of Easter. After that, many British astronomers see merit in the proposal of the late Alexander Philip for a simple change which would merely transfer one day from August to February. The plan for a 12-month equal-quarter revision has only lately begun to attract attention in England, and I am glad to learn of the activities in its behalf by the British Parliamentary Committee on Calendar Reform and the newly organized Rational Calendar Association."

Eastern Europe has shown no interest in calendar reform, according to Professor Opik, the Esthonian delegate to the Cambridge meetings of the International Astronomical Union. "Certainly it is not a subject which we feel belongs in the field of astronomy," he declared.

Several of the younger delegates to the Cambridge Assembly reflected the same astonishment as Professor Opik's, that a subject which appeared to be essentially civil and governmental should be brought up for discussion at a meeting whose program otherwise was purely scientific. It was explained, however, that the question of calendar reform was thrust into the consideration of the International Astronomical Union originally by Pope Leo XIII and the secretary of the International Chamber of Commerce. According to the published minutes of the Union: "When in 1884 the Abbe Croze of Paris went to Rome, charged with submitting the idea of Easter stabilization to Pope Leo XIII, the latter replied that the opinion of the astronomical authorities must first be secured on all calendar problems. . . . Later the International Chamber of Commerce, represented by M. Armand Baar, similarly sought the opinion of the astronomical authorities on the scientific considerations involved in any reform of the calendar." It was in response to these requests that the International Astronomical Union appointed its Commission 32, under the honorary chairmanship of Cardinal Mercier and the active chairmanship of Professor Bigourdan.

It may be noted that the secretary of the International Chamber of Commerce took an active part in the meetings of Commission 32, and spoke in opposition to any 13-month division of the calendar. "The proposal to establish uniform months of 28 days each," he said, "presents at first view a rather attractive symmetry, but its apparent perfection is not real. For the 13 months are not divisible by 2, by 4, or by 6. Owing to this defect, the 13-month calendar destroys the present convenient arrangement of the year into quarters and halves, since any division into quarters and halves requires the breaking up of months in an impossible inconvenience. Certainly the quarters and the halves are too useful in all the ordinary affairs of life to be lightly discarded. For this reason I demand the retention of a 12-month system in any plan for calendar reform."

From the minutes of the 1922 sessions of Commission 32, which the Executive Committee this year declined to revise or supplement by a fresh consideration of the subject, it appears that there was practically unanimous agreement in favor of calendar reform, in favor of the 12-month equal-quarter plan of revision, and against any proposal to adopt a 13-month calendar. The Abbe Chauve-Bertrand of France, secretary of the Commission, spoke in favor of the 12-month plan, and closed like a true son of the Church with an appeal for an amicable joining of forces on the part of advocates of the two plans. Professor Bigourdan, the chairman, commented dryly, "An excellent idea, but no accord seems to be possible except on a basis of considering the 12-month plan as the legal and official calendar, leaving an arrangement of 28 day months to be employed as an auxiliary calendar for accounting purposes where it is helpful." He

proceeded to support this point of view with a statement from the official French Society for Encouraging National Industries, and as a result of his suggestion, the final recommendations of Commission 32 contain a proviso relegating the 13-period and 26-period calendars into a subordinate place as auxiliary methods for special use in accounting and statistics.

The minutes of the International Astronomical Union contain the following official statement of the "Defects of the Gregorian Calendar," as formulated by Professor Bigourdan:

"The principal defect is the lack of concordance between the days of the month and the weekdays. When the first of January falls on Monday, the following year will find it falling on Tuesday, or even on Wednesday if the preceding year was a Leap Year. To find out what week day corresponded to a given day of the month, it is necessary to probe through a table of dates for the year in question, which involves keeping at hand an elaborate set of tabulations for this purpose.

"Next in order, the quarters are unequal. So are the months, which vary through a series of 28, 29, 30 and 31 days.

"The names of the first eight months are arbitrary designations, and the names assigned to the last four months are incorrect and inexact.

"The beginning of the year is placed at an arbitrary point completely out of accord with the astronomical seasons.

"The mobility of the Easter date is a cause of inconvenience in education, jurisprudence, commerce and other lines of activity."

Members of the International Astronomical Union believe that the impetus given to the whole calendar reform movement during the past few years is due in large part to the interest shown by their organization in 1922. One of the original members of the Union's Commission 32, Prof. D. Eginitis, official astronomer of the Greek Government, has continued a very active leadership in calendar reform ever since that time, and it was mainly due to his enthusiasm and influence that the Greek Government cast its vote emphatically in favor of a 12-month equal-quarter revision of the calendar at the League of Nations meeting in Geneva in 1931.

A considerable loss to calendar reform is the recent death of Professor Bigourdan, leading French astronomer, whose championship of the equal-quarter plan had been active and effective in eminent French circles for more than a decade.

Most of the delegates to the Cambridge meeting were of the opinion that calendar reform has now advanced to the stage where its main promotion is in the hands of commercial, civic and governmental organizations. The voice of scientists and astronomers has been clearly registered in the past, for the most part in favor of a moderate reform and overwhelmingly against any 13-month experiment. The actual enactment of a new calendar now remains to be achieved in the regular channels of government.

COTTON AND CALENDARS

By DAVID THIBAUT

Born on a cotton plantation in the central South, Mr. Thibault is familiar through personal experience with every phase of cotton production. He has raised the crop as a share-cropper, small renter, and as manager of one of the huge plantations in the delta of the Mississippi. Since these activities he has devoted six years to agricultural extension work with the U. S. Department of Agriculture, and an equal period to editing a farm paper in New Orleans. The cotton grower, he points out, will not look with favor on any *radical* change in the calendar, but will favor a *moderate* revision which will palpably increase the efficiency of the calendar as an instrument for comparing dates and seasonal divisions.

THERE are complications enough in cotton raising. Making computations by a brand new calendar with a brand new month interpolated between the two most important growing months would certainly add to them. The planter's season is not an artificial division of the year. It derives from the reckonings of such fundamental chronographers as the sun, the swelling of seeds and buds, the coming of spring across the land, the blazing, fructifying summer heat, and the fruitfulness of harvest yielding to the hard grip of winter locking the land. If his earth and his crops and his seasons and the traditional knowledge gained from them were made over to fit a radically new calendar, doubtless the planter would sponsor any bizarre system shaped to make the best of this chaotic upheaval. But until such a debacle changes his universe, with sound good sense, he will welcome calendar revision only as it simplifies and increases for him the usefulness of the system under which his hard-bought wisdom was garnered.

Of the systems of calendar revision now offered, he would certainly prefer the 12-month equal quarters plan sponsored by The World Calendar Association. This plan "corrects the defects of the old calendar with a minimum of changes. It achieves law, order and harmony in a simple manner. It takes the *year* as the principal calendar unit, arranging its divisions harmoniously so that at the end of every quarter, the days, weeks, months, season or quarter agree and the year with its perpetual feature is complete and stability is assured."

Perhaps because of the color and verve of certain politicians from the wheat producing West, many of us have come to regard wheat as the most important of the nation's cash crops. As a matter of statistical fact wheat represents only 7.89 per cent of the total farm cash income. All grains, including wheat, make up but 10.8 per cent of the total cash farm income, and hogs and beef cattle are represented respectively, by

12.91 and 10.5 per cent. By far the greatest single source of crop cash in the United States is cotton, which represents 14.59 per cent of the cash value of all our farm crops.

Cotton is produced in 19 of the 48 States, but eleven States comprise the "cotton belt"—an agricultural empire more than 700,000 square miles in area, and larger than the combined area of Germany, France, Italy and Spain.

In this huge territory more than two-thirds of the world's supply of cotton is produced, giving employment to more than seven millions of people. Production over this area varies, of course, with seasonal conditions, acreage planted, available labor and the fluctuating damage done by insect pests and diseases of the cotton plant. In the past ten years the smallest crop was that of 1923, when production fell to 10,140,000 bales.

The index of the capacity of a country to consume raw cotton is the number of "active" spindles to be found there. With the ebb and flow of the factors already mentioned, the number of active spindles necessarily varies. Great Britain, with a total of about 63,000,000 spindles, has long led in the cotton textile world, but the margin of her lead is markedly decreasing. The United States is second with 40,374,000.

When we think of our 7,000,000 of Southern rural dwellers occupied in producing cotton, of the millions here and abroad engaged directly in spinning and weaving it, of the elaborate and complex banking, merchandising and transportation systems which depend upon the crop, we must feel that for a plant, no wild species of which is native to North America, the showing is an amazing one.

How is this crop produced? What are the factors which govern production, emphasis or stint of which spell weal or woe to the cotton farmer? But first let us dissipate a fallacy which has done much to obstruct understanding of the cotton producer as an individual.

The belief is held, often enough by men actually engaged in cotton planting, that the bulk of the crop is produced on great plantations where thousands of acres under centralized management yield hundreds and thousands of bales yearly. There are such plantations. In the boom times immediately following the World War, there were land and lumber companies in Arkansas, Louisiana and Mississippi which logged, cleared and planted a new unit of from 500 to 1,200 acres each year. This was a routine program. Much of this land in good seasons produced well over a bale per acre. These monster enterprises and the great ante-bellum estates, many of which are still in operation, have colored our picture of cotton production—have, because of their size and romantic appeal, submerged in popular concept, the average producer.

In dramatic contrast to this popular picture, the average cotton producer is a small family-farm operator. How small we know from sta-

tistical records which prove that the average cotton farm is eight to ten acres, with an average production of about four bales!

Thus the typical cotton planter emerges not as a fiery, aristocratic and goateed individual on a prancing thoroughbred, but as a small farmer joined by his family in the job of wresting a precarious living from soil which, over much of the cotton belt, has been sadly depleted by erosion and by the effects of open, mild winters and heavy rains. Like other farmers he mixes art and science in his struggle with the recalcitrant elements.

His fundamental equipment for his job are the traditions which generations of his fellows have garnered. Secondary aid lies in the teachings of scientific agriculture. Time-reckoning, as it is recorded in seasons and applied to human effort, is the basis of both kinds of knowledge.

When shall I plant the warm, deep "bottom-lands"? When the light sandy upland field? What date does the first boll-weevil appear, signaling that I must apply control measures? What percentage of the crop was open by October last year? When did we start "chopping"? When do we usually "lay by?"—begin picking?—gin?—sell?—cut stalks?—break, bed, and put down fertilizer for next year's crop?

These and a thousand similar questions are so common, so easily answered by references to corresponding dates, that they appear trivial. But suppose they could not be answered so readily? Suppose that by the introduction of a radically different system of time-reckoning, the traditional values of dates, and the comparability of present dates with those of the past was greatly complicated and impaired? We would then find these simple-seeming traditions, these commonplace scraps of "turn-row" information, of such fundamental importance that we could not carry on until, by translations and new reckonings, they, or the equivalent body of data were available.

For these reasons—a scant handful grasped from thousands—the cotton grower will not look with favor on any radical change in the calendar. Revision which would increase the efficiency of the present calendar as an instrument for comparing dates, for interpreting data, should be welcomed; but only if it conforms to natural seasonal division, and does no violence to the system by which the traditions and science of farming in general and of cotton growing in particular are interpreted.

Support of a 13-month year calendar could not be expected from those engaged in the cotton industry. Various phases of the culture, harvesting, ginning, selling and shipping, are identified with certain months and seasons. The planter who looks for his first blooms July 10, would not relish computing just what date in the month of "Sol" that might be. Nor is the instance as trivial as it may seem. The planter's interest in early cotton blooms is not purely esthetic. In this epoch of boll weevils and quick-maturing varieties, every indication of the crop's progress is watched.

CATHOLIC CRITICISM

By THE REVEREND EDWARD S. SCHWEGLER, D.D.

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(From "The Fortnightly Review," St. Louis, Mo.)

THERE has come to the notice of the writer, who has for some time been interested in the question of calendar reform, an article by the Rev. Henry Woods, S.J., Librarian of the University of Santa Clara, in *The Monitor*, San Francisco. Some comments on this article may clear up certain prejudices that seem to be held by many Catholics on this important subject.

But first of all, objection might be made to the sarcastic tone of the article. One can discuss a debated point without heaping irony upon the opposing side; in fact, sarcasm merely hides the issue and produces an atmosphere of ill feeling in which the truth is apt to become shrouded. Let honest protagonists and opponents of calendar reform discuss the project, write about it, flood it with the light of publicity, in a calm and disinterested fashion. Then, if there is found to be any merit in the new proposals, Catholics should be foremost in the reform, both because of their great influence and numbers, and because of the importance of the question to the Church. If, on the other hand, the projected reforms are found to be essentially objectionable and incompatible with revealed truth, Catholics should be equally active in opposing them and exposing their fallacies. As yet the whole question is sufficiently nebulous to allow both sides much latitude of discussion; and this being so, sarcasm only brings resentment in its wake and proves nothing whatsoever.

The first few paragraphs of Father Woods' article have to do with the general desirableness of variety. There is variety, he argues, in nature, in architecture, in the human body; therefore there should also be variety in the calendar. This argumentation is entirely beside the point. The calendar is not a work of art or a product of nature; it is an artificial unit of time, a man-made norm of measure. And in measuring things, uniformity and regularity are indispensable. The simpler and more intelligible a measuring system is, the more useful and desirable it becomes. For that reason the metric systems of measure are far superior to our own illogical feet and quarts and pounds. And even with these, who would maintain that the number of inches in the foot, or of pints in the quart, should vary in different places or at different times purely and solely for the sake of variety? The argument is rather absurd, to say the least.

Further on Father Woods is guilty of an error that many critics of calendar reform make: they identify the latter with the 13-month calendar. In reality the 13-month calendar is only one of many proposals.

There has been, and is today, a very pronounced movement to bring about the reform *without* introducing a year of 13 months. In this country the movement is sponsored by The World Calendar Association. This group is utterly opposed to the 13-month calendar, and proposes a very simple plan, which would hardly disturb our present system at all. "A day is taken from March, May and August. Two days are added to February, and one to April. All the other months—January, June, July, September, October and November—remain the same. An extra-calendrial day called 'Year Day' is added between December 30 and January 1 in ordinary years; while in leap years a similar day called 'Leap Day' is added between June 30 and July 1." These extra-calendrial days are not named as ordinary days of the week and are not counted as days of the year. The result is a constant calendar of 364 days, with each quarter identical, and with the months having a constant succession of 31-30-30 days.

Now, the omission of one or two days a year, as the case may be, means that the customary succession of week-days will be broken and that there will be one or two weeks in the year actually containing eight days. This fact causes much trepidation to the opponents of calendar reform. "The reformer, then," says Father Woods, "has to treat the last day of the year as non-existent, to deprive it of its place in the months and weeks, to inflict upon it the curse of Job, in one word to build up his reform upon a lie."

Ignoring the rhetoric, one may inquire: do we not now build up the calendar on a lie? The year actually contains about $365\frac{1}{4}$ days; every four years we add the quarter days together and append an extra day to the calendar in the form of February 29th. In other words, every three out of four years we ignore a fraction of a day, and so, according to Father Woods, are guilty of a horrible prevarication. But something like this *must* happen. The number of days in the year is a fractional figure and some compromise *must* be made. The question to be discussed is whether the more radical compromise suggested by the reformers will produce worthwhile results, without, at the same time, going counter to essential beliefs and dogmas.

Father Woods seems to think a reformed calendar would do just this thing. He says: "The week is of divine origin bound up with revealed religion. Among the Jews it was intangible [?]. By divine decree each seventh day was sanctified. With the passage of the old dispensation into the new, the weekly holy day was changed; the week itself remained." And further on he refers to "an attack on the week prompted by hostility to the Mosaic revelation."

Well! The writer does not put himself forward as an authority on Scripture; but, subject to authoritative correction, he fails to see how the

week is so eternally and rigidly of divine institution that it becomes immutable. Either the week was instituted in the primitive revelation for all time; or it was legislated by Moses for ever and a day; or it was established by Christ for the Christian era; or it was produced for the same by Christ's Church. The first three of these propositions either cannot be proved, or are patently false. That the week was established by God in creation and has continued so ever since, so that the day of rest, the Jewish Sabbath, is precisely 7 times x days from the day on which the Lord rested, simply cannot be demonstrated. No one knows exactly when or how creation took place, nor how long it lasted. On the other hand, that the week of seven days was legislated for all time by Moses is disproved by the bare fact that Christians observe the first day of the week instead of the seventh as their day of rest and worship. As for the third and fourth points, nowhere in the gospels or in tradition do we learn that Christ legislated a week of seven days; the observance of Sunday gradually became universal in the Church after Christ's Ascension, and by virtue of the Church's power and authority to introduce and approve of such a new usage. Indeed, Christ himself condemned the too literal observance of the Sabbath (Mark II, 27).

The very change from the Sabbath to the Sunday proves that the Church does not consider the length of the week as rigid and immutable. For at different times and in different places, as the Sunday observance crept in, there must have been an eight-day week: a week extending from the discarded Sabbath to the newly adopted Sunday.

In other words, the length of the week and the designation of the day of rest are matters of positive legislation; and the proper authority can change that legislation. The essential thing is not the establishment of an unchangeable interval, but the assurance of reasonably periodical days of rest and divine worship.

It may here be noted that the extra-calendrial days of the reformers might easily be adopted by the Church and changed into holy days of obligation. Year Day, for example, might be dedicated to Christ the Worker, a feast so many Catholics would like to see instituted; and Leap Day might be observed, let us say, to impetrate Divine Providence for the "Pax Romana" all over the world.

Furthermore, inasmuch as these extra-calendrial days would fall before Sunday by the new plans, there would actually be the old intervals of six week-days between the periods of rest anyhow; and the day of rest at the end of the year or at its middle would simply be doubled—which, we may say, would be but an amplification of the Jewish and Christian tradition of recurrent periods for rest and worship.

This is not the place to discuss the advantages of calendar reform or the disadvantages of the present calendar: the literature upon the subject

is vast and easily available. As for the ease and simplicity with which, according to Father Woods, the day of the week for a given date may be calculated by our present calendar, his very demonstration of that ease and simplicity brings out rather the difficulties and complications of the computation. It may safely be wagered that not one of his readers, outside, possibly, of a few priests who had previously studied the matter, understood his explanation of the perpetual calendar in the Breviary and Missal, whereby such calculations may be made.

Nevertheless, this ease of computing things by the present calendar our critic proclaims as an "advantage of being a Catholic," and he adds that "after all, the existing calendar is a Catholic work." Is it? Let us consider a bit. No one knows whence we got the week—perhaps from the pagan Babylonians. The days of our week are named for heathen Scandinavian and Roman gods. The months, together with their names and their very lengths, come to us from the idolatrous Romans; and the anomalous 28 days of February are due to the fact that Caesar Augustus stole a day from February and added it to his own month, August, in order that the latter might have as many days as the birth month of Julius Caesar (July) and that thus the imperial greatness and dignity might be sustained. The idea of leap year we got from the Julian calendar, as also the associated result of keeping the equinoxes in the same place each year. We inherit our method of calculating Easter from the Jews. What Pope Gregory did was simply to correct Caesar's leap year computations by dropping ten days and introducing a new leap day rule. Therefore, our calendar is, in its days, weeks, months and years, a howling pagan!

To call calendar reform an "element in the universal movement against Christianity," "an attack prompted by hostility to the Mosaic revelation," "antagonism to divine revelation, to religious observance," is arrant nonsense. No Catholic journal that the writer has seen in the last few years takes such a stand. For example, *The Commonweal*, in an editorial, July 1, 1931, commenting on the plan advocated by Dr. Rudolf Blochmann in Germany, a plan fundamentally the same as *The World Calendar* described above, said: "Without any hesitation we cast our vote for the Blochmann principle, and find ourselves in agreement with the following statement: 'It is greatly to be desired that this question of calendar reform should not be allowed, now that it has been opened to discussion, to rest again until it has been settled in a manner as satisfactory as possible.'" It might also be pointed out that Father Woods, in condemning all calendar reformers indiscriminately, must include in his anathemas one of his own confrères, the Rev. James A. Colligan, S.J., who has long been interested in the subject, and, indeed, has written a brochure upon it.

Catholics should maintain a reasoned and sane viewpoint in this as in every other discussion. The Holy See has already stated through the

Apostolic Nuncio at Berne (March 7, 1924) that "any changes which might be made in regard to the fixing of Easter, though they would meet with no objections from the point of view of dogma, would nevertheless involve the abandonment of deeply rooted traditions, from which it would be neither legitimate nor desirable to depart, except for weighty reasons of universal interest." (Cf. *Ecclesiastical Review*, April, 1929, p. 342.) This, of course, does not settle the entire matter; for only if Easter is thoroughly fixed *both in day and in date*, does the controversial extra-calendrial day become necessary. However, the statement of the Holy See demonstrates an open mind on at least one very important demand of all calendar reformers, namely, the fixation of Easter. Meanwhile we Catholics should study the whole question calmly and rationally, bringing out the pros and cons, and perhaps even making the subject such a lively issue that the Church will examine it more closely and issue a definitive statement on the inviolable sanctity of the week and the deviltry of the extra-calendrial day, or *vice versa*. Until such time, it is submitted, both sides should study the question judiciously and not call the other side names either for intransigence or heresy.

DEATH OF THE REV. DR. ROBERT NORWOOD

THE Rev. Dr. Robert Norwood, rector of St. Bartholomew's Protestant Episcopal Church in New York City, and a member of the American Advisory Committee of The World Calendar Association, died on September 28. He was in his 58th year.

One of the most forceful speakers in the pulpit, Dr. Norwood presided over one of the largest Protestant parishes in America. He was born in New Ross, Nova Scotia, and was naturalized as an American citizen in 1923. Educated at the University of King's College in Nova Scotia, he had received honorary degrees from several Canadian and American universities.

Ever the mystic and the poet, Dr. Norwood often preached against materialism and the "hard intellectuality of our times." He said of modern literature: "It is full of the beliefs of Sadduceeism, but it has no soul." He was the author of ten books, the latest of which was "The Man Who Dared to Be God," and at the time of his death he had just completed work on another volume, "Increasing Christhood." He was a member of the Poetry Society of America, the Franklin Club of Philadelphia, and the Andiron, Authors and Players Clubs of New York.

He had been actively associated with The World Calendar Association from the beginning. "My interest in this reform of the calendar is emphatic and definite," he wrote a few months ago in *The Churchman*, leading organ of Episcopal thought in America. He was particularly interested in the stabilization of the Easter date, but at the same time felt that the churches should consider all phases of calendar reform, an attitude which was emphatically endorsed in the action of the Universal Christian Council at Geneva a short time before his death.

STATISTICAL ERRORS

By DR. H. PLATZER

Chairman of the German Committee on Calendar Reform, Director-General of the Statistical Office of the German Government

During the past month the President of The World Calendar Association has been in Germany, conferring with Dr. Platzer and other members of the German Committee on Calendar Reform. Interest in the subject continues keen and active in Germany, and a campaign to stimulate further this interest is planned to begin in December. A special committee will probably be formed to consider the merits of the two major plans for revision, both of which have active advocates in Germany. The following article is abridged from a scholarly address on "Comparability of Periodical Statistics," delivered by Dr. Platzer at the International Institute of Statistics.

ONE OF the main elements of all statistics is time measurement, and the accuracy of statistical records and compilations is dependent on the accuracy of the principal time units—years, quarters, months, weeks, days and hours. In this modern era, when public and private business is increasingly dependent upon statistics, and when there is a demand that these statistics shall be accurate, comprehensible and practical, the existing calendar irregularities are a serious defect and a frequent source of error.

These calendar errors are not only quantitative, but also qualitative. The quantitative errors are those which deal with the different lengths of the divisions of our calendar year—months, quarters and half-years. The qualitative errors are those which result from the fact that the weekday composition of the divisions of the calendar varies within the year from month to month and within the same month from year to year, and that holidays are differently distributed.

Theoretically, a great many of the resultant inaccuracies in statistical results may be eliminated through the use of correctional adjustments. But practically, these corrections are often difficult and sometimes impossible. In some cases the effect of calendar irregularities cannot be corrected, because it is not completely known; in other cases the correction is very complicated. Certainly no experienced statistician can fail to regret these irregularities, for the problems which have to be solved by statistics, especially in modern business, require the greatest possible accuracy of measurement.

The defects of the present calendar which most seriously affect statistical studies are: the unequal length of the individual divisions of the year; the difference in the weekday composition of the individual divisions

of the year; the variability of the calendar from year to year, and the mobility of holidays, including Easter and all of its dependent church festivals.

I.

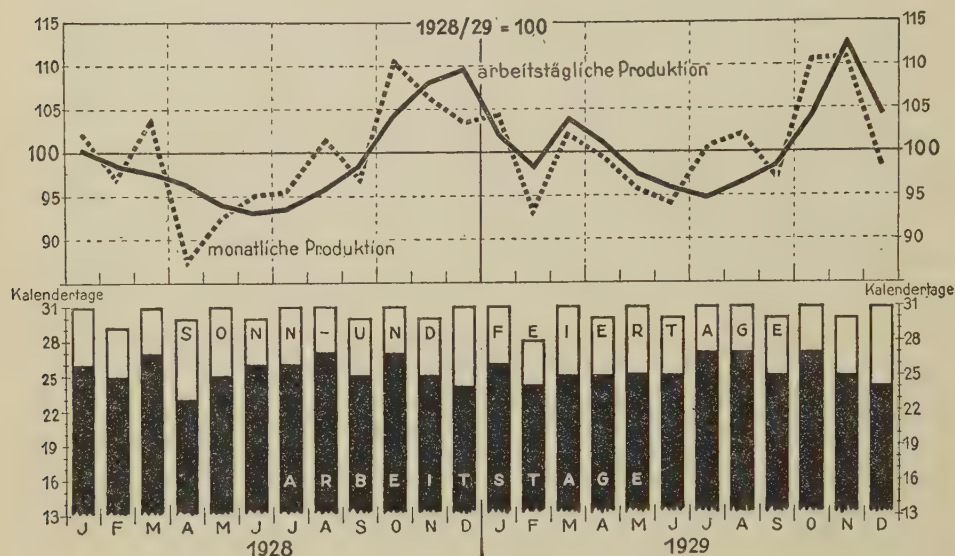
The months of the present calendar have from 28 to 31 days; the quarter-years vary from 90 to 92 days; the half-years range from 181 to 184 days. (There is an obvious error in statistics which figure each month as one-twelfth of a year.)

Many monthly statistical compilations make allowances for these variations. When all the days of the month have the same value for statistics—as, for example, the statistics of births and deaths—then the error caused by the varying lengths of months may amount to eleven per cent, as in a comparison between February and March. This error may be still larger, if only weekdays are considered, as in statistics of industrial production and money exchange. It increases even farther in statistics which deal with only certain days of the week, such as market days. For instance, in the official German tabulations of trade in livestock, the number of principal market days may vary in some districts from 8 to 9 per month, a difference of $12\frac{1}{2}$ per cent; while in other districts it varies from 4 to 5 per month, a difference of 25 per cent. Other examples of the statistical effect of the length of months may be found in: vital statistics; figures of agricultural and industrial production; building activity; foreign trade; passenger and freight traffic on railroads, steamships and inland waterways; retail trade; receipts of excise taxes, trade taxes, and the tax on retail turnover; banking, money markets, bankruptcies and receiverships; company statistics, including the organization and liquidation of enterprises.

Correction of these errors is done in most cases by recalculating the results in proportion to the number of days in each period. For example, in the German official statistics of population, the monthly and quarterly figures of births and deaths are recalculated either to the rate per day or to the rate per year. But this method is of no service on the statistics for marriages, because all weekdays are not of the same value or importance for marriages. In Germany, marriages pile up tremendously on Saturdays and on the days preceding holidays. Hardly any marriages take place on Sundays or holidays. Therefore, neither the monthly totals nor the recalculations to a per diem basis give a true picture. Accurate statistical correction of these figures is at present impossible, owing to the lack of accurate indexes for various districts.

In the official German tabulations of coal production, the monthly statistics are now corrected on a basis of the number of actual working days in each month. The difference which this makes in calculations of trend

may be judged by the accompanying chart, in which the black line represents the production by working days, while the dotted line represents the production figured merely on monthly totals.



Calendar inaccuracies in monthly statistics of coal production in Germany. Dotted line represents trend as indicated by monthly figures; black line shows correct trend, as figured by actual number of working days per month.

Corrections to the number of working days in each month are also used in the official German statistics on bankruptcies and receiverships, and in the reporting of freight car loadings. The necessity of this correction in the monthly statistics of foreign trade is shown by the reports of exports for three months of 1930: January, 1,092 (million Reichmarks); February, 1,026; March, 1,104. According to these figures, there was a decrease of 66 million Reichmarks in February, and an increase of 78 million in March, as compared with the previous month. Without taking into consideration the number of trade days, the totals for February would produce a pessimistic opinion, and the figures for March an optimistic one. But the corrected average report for each month was as follows: January, 42.0; February, 42.8; March, 42.5. Thus the differences in the three months are shown to have been very slight, with a trend exactly opposite to that shown by the calendar totals.

In figures of livestock sales, where—as already mentioned—the calendar errors are very great in all monthly totals, the German statistics avoid this difficulty by using only weekly totals. The same system is largely used for payroll statistics.

These examples serve to show how statisticians are compelled to correct monthly and quarterly statistics by recalculation of totals to calendar days, working days, or weeks.

In many cases, these corrections are fairly simple and satisfactory. But there are other tabulations in which such adjustments cannot be made, because the factors of error deal with other irregularities of the calendar besides the varying length of months. It has already been pointed out that correction of month-length is of no value in adjusting statistics of marriages. The conditions which affect the statistics of retail sales turnover are similarly involved, and the same thing is true in many tax statistics. Examples of statistical difficulties in taxation compilations are found especially in taxes on retail turnover, sugar, beer and spirits, tobacco and traffic. Recalculation to a basis of the number of working days has been tried in all these tabulations, but without satisfactory results, owing to calendar influences that cannot be accurately expressed in any ratio or index figure.

An example of these difficulties is found in the tables of "consumption taxes," which include sugar, tobacco, beer and spirits. No accurate result can be obtained through calculations by working days, because the falling of the first of a month on a certain weekday will largely affect the consumption of these articles. Similar statistical disturbance of the totals comes from the variations in the number of weekly pay days falling within the month.

In statistics of wages, calendar irregularities are very important. If, in a given industry, the total payrolls are kept by the month, all sorts of errors arise. As the total payments of the workers are usually on the basis of the actual working hours, the monthly total is affected by several factors, and corrections made for one of these may create a distorted picture from another viewpoint. Payroll figures may be used as a basis for figuring cost of production, or workers' income, or for comparison with other districts. If the payroll figures are carried back to the average cost per working hour, the differences in working time in different months will be eliminated, as well as the inequalities of the calendar months—but these are two factors of altogether different quality and significance. The indiscriminate elimination of such different elements is unfortunate and destroys some of the statistical results which are needed.

II

The most trying fault of the calendar, from the viewpoint of the statistician, is the variation in the weekday composition of the various subdivisions of the year.

The position of the weekdays shifts, for instance, from month to month, so that months and quarters have different weekday compositions. Be-

cause the different days of the week have different values in commercial and social life, the occurrence of sometimes four and sometimes five Saturdays, Sundays, or other weekdays, in otherwise comparable months, can upset statistical comparisons.

We have shown that in some cases corrections are possible by eliminating Sundays and holidays and recalculating back to the average of the weekday or working day. But there are many other cases where such corrections do not correct, and a clarification of the statistical results is only possible if the average value of the weekday is known. This introduces a difficult adjustment and one which frequently cannot be accurately made.

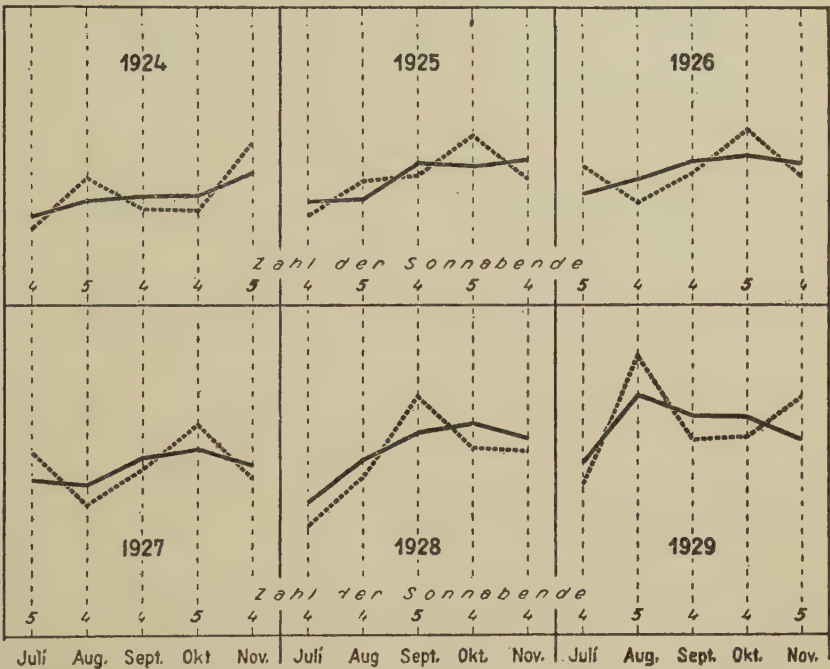
It is obvious that such a dismembering of the statistics to single days can seldom be undertaken, because the operation is too laborious and expensive. In fact, in the majority of cases where such a correction is really needed to insure accuracy, the figures for single weekdays are not even known.

Every government devotes much care and attention to the perfection of vital statistics, including births, deaths and marriages. These statistics of population are based on dependable figures, and indeed were the foundation of modern scientific statistical method. But in the monthly statistics of marriages there are calendar defects which are still to a large extent unknown factors, both as to their cause and as to their effect. In Germany, as has been pointed out, the majority of marriages take place on Saturdays, and very few on Sundays. But other days of the week also show variations.

According to unpublished statistics of the state of Hamburg, which are the only statistics of marriages by weekdays available in Germany, the results for that district are as follows, based on a total of 53,000 marriages: Sunday, 0.32 per cent; Monday, 2.78 per cent; Tuesday, 7.55 per cent; Wednesday, 6.23 per cent; Thursday, 7.37 per cent; Friday, 7.89 per cent; Saturday, 67.86 per cent.

Although the conditions of Hamburg cannot be regarded as standard for Germany, the distribution of marriages among the various days of the week might be very similar in other districts. At any rate it is clear that the total number of marriages in a month, or the day's average per month, depends to a large extent on the number of times certain weekdays, especially Saturdays, appear in that month. The following chart, compiled from the Hamburg figures, shows a comparison between day's averages of monthly figures of marriages, and weighted day's averages, in which every day of the month has been weighted by the above-mentioned average of frequency. The comparison has been limited to the months July to November of each year, because the figures of marriages in these months have not been influenced by the great holidays of Easter, Whit-

sunday and Christmas. The dotted line shows the uncorrected daily average; the black line shows the correct trend, which is often at complete variance with the other.



Calendar errors in monthly statistics of marriages in Hamburg, due to difference in weekday values. Dotted line represents trend as shown by monthly figures; black line shows correct trend.

There are many other statistical tabulations in which the varying weekday composition of calendrical divisions is undoubtedly important, but accurate presentation of the error is impossible for lack of the necessary information. In the electrical industry, for instance, there is production of current on all days of the week, but on Sundays and holidays it is produced only in small quantities, for illumination, home use and public utilities. Industrial and manufacturing use is largely absent. Therefore, in electrical statistics, the average of a calendar day is not an accurate statistical unit. Even the customary calculation by average working day contains elements of error. For instance, in Germany Saturday is counted as a full working day, although obviously the Saturday consumption of electricity is lower than that of other weekdays. Therefore the present corrected figures by months are inaccurate.

In traffic statistics the weekdays lead to similar errors. There is freight traffic on Sundays and holidays, but it is lighter than on weekdays.

In passenger traffic, business travel is heavier on weekdays, and tourist traffic is heavier on Sundays and holidays. To what extent there is a loss or increase on Sundays can hardly be stated, because this condition varies by season, by the kind of transportation, and geographically.

The Berlin Transportation Company figures that its street cars, buses and subways transport one-third fewer people on Sundays than on weekdays. The values of various days are as follows:

	<i>Streetcars</i>	<i>Subways</i>	<i>Buses</i>
Sunday	10.2	9.2	11.6 per cent
Monday	14.7	15.1	14.4
Tuesday	14.8	15.0	14.6
Wednesday	14.9	15.0	14.5
Thursday	14.8	15.1	14.5
Friday	14.9	15.2	14.6
Saturday	15.7	15.4	15.8

III

Perhaps the most serious fault of the present calendar from the viewpoint of the statistician is its variability from year to year. This fault is caused by the fact that the year consists of 52 weeks *and one day* (in leap year, 52 weeks and two days), with the result that the beginning of the year shifts in successive years, and therefore all calendar days occur on different weekdays in successive years.

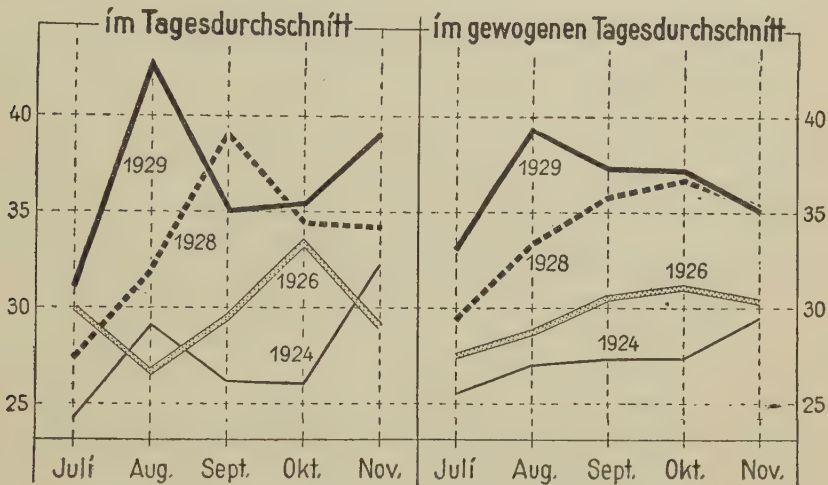
Statistically, this lessens the value of many comparative tabulations, for it changes the weekday composition of every month and every quarter. The comparability of the same periods in different years suffers whenever the single weekdays are of varied importance.

The statistician, for instance, has before him the tabulations for the month of January in three or four successive years. His comparisons are open to serious question in consequence of the different values of the single weekdays. And there is seldom any accurate correctional ratio which he can apply.

As an example, the statistics of marriages in the state of Hamburg offer a convenient illustration. The years 1924, 1926, 1928 and 1929 are chosen because in those years it happens that always a different month from the preceding year contains five Saturdays. The left half of the illustration shows the monthly marriages in the day's average; the right half shows the "weighted" or corrected day's average. The effect of the corrections on the course of the curves is a striking illustration of the tremendous effect of calendar irregularities.

A brief page from statistical history will indicate how serious these errors are. Referring to the chart of marriages in Hamburg, it is recalled that in the second half of the year 1929 the monthly published figures of marriages in German cities caused widespread comment, for they

showed a strong variation in development as compared with the preceding year. In September, 1929, there was an extremely low figure for marriages, as compared with the previous year, while the results for October and especially November, were higher than before. It was hinted that the frequency of marriages had been altered by seasonal influences of an unusual character, and there was much comment on this surprising fact.



Calendar inaccuracies in statistics of marriages in Hamburg, showing the errors arising in comparison of the same period in successive years. Left half of illustration shows official statistics; right half shows same curves corrected for calendar irregularities.

But a careful statistical check-up showed that the calendar alone was responsible for the trend of the statistics, and the explanation was comparatively simple: in 1928 September had five Saturdays; in 1929 August and November had five Saturdays.

The statistics of marriages are only one example of this species of calendrical error. Many other examples might be cited. For instance, the statistics of retail turnover, in which a German statistical organization has endeavored to create certain correctional indices, whereby the value of 1.3 "normal selling days" is arbitrarily allotted to the selling day preceding a Sunday or a holiday, and likewise a certain additional number of normal selling days are awarded to the "get-ready" period which in Germany precedes Easter and Whitsunday. This rough-and-ready method of correction serves in a way to improve the calculation of the regular seasonal movements in retail trade.

Another example of the same calendrical error is found in the statistics of international banks of issue. The most important of these banks publish their weekly reports on a certain fixed weekday. But the money circu-

lation with a month is always subject to certain recurring vacillations which have a considerable statistical importance. And, of course, these are lost or distorted for purposes of comparison by the fact that the weekly reports are issued on different calendar dates.

IV

The mobility of Easter and of the movable church feasts dependent on it causes conspicuous and serious disturbances in many statistical comparisons. This factor, of course, is of varying importance in different countries, depending on how much secular emphasis is placed on these religious dates. In Germany it has an enormous effect, particularly in relation to the two periods centering in Easter and in Whitsunday.

Either of these feasts may occur in different months in successive years; Easter can be in the first or second quarter; there may be fiscal years which have two Easters, and others which have no Easter at all. The latter factor arises repeatedly in the administration of the finances of the German government, whose fiscal year is from April 1.

Aside from these statistical difficulties, the position of the feast days in relation to the season has an influence on business conditions. Travel and tourist traffic will be different in the case of a late Easter, and the Spring business of the clothing industry and related lines will develop differently. Hence, from year to year vacillations of economic trends make a comparison of trade statistics very difficult.

Easter exercises a surprisingly wide statistical influence. It impinges on such seemingly remote fields as the coal industry, statistics of building, of bankruptcies, and of receiverships. Marriages pile up in great numbers just before these feasts: the frequency of marriages in German cities is almost twice as high in the week before Whitsunday as in the general average. May is normally the important month for marriages, but in 1930, when the Whitsunday week fell in June, May and June stood almost equal, thanks in part, however, to the additional factor that May happened to have five Saturdays.

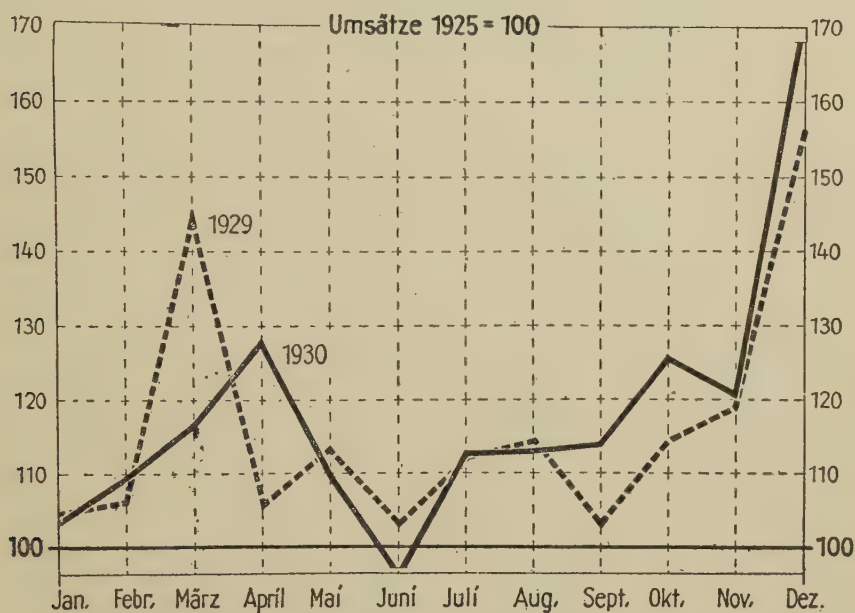
As a result of the calendrical errors which affect marriage statistics, it is an actual statistical fact that no sure conclusions can be reached as to the trend or development of the frequency of marriages in Germany for the months of March to June.

Trade statistics are badly jumbled by the effect of the movable feasts. There is a piling-up of imports and exports which is noticeable many weeks ahead of the holidays; the beginning of this movement shifts from year to year and hampers observation of the normal seasonal trends. For instance, in 1929 the Easter rise in imports and exports was of benefit to February; in 1930 to March.

There is an abnormal rise in money circulation due to the Easter and

Whitsunday holidays, and the shifting of Easter throws this into different periods to the bewilderment of all statistical comparisons.

The influence of the shifting feast days is far wider than the uninformed observer would suspect. Statistics of retail trade show that there is not only an increase in trade before each of these feasts, but also a reaction which results in a decrease in turnover afterwards. The shifting



Effect of wandering Easter on statistics of chain store sales of tea and coffee. Scale is based on 1925 as 100.

of the holidays throws these factors now into one period, now into another, to the complete upsetting of comparative observations. To illustrate, take four typical years:

- Year A. Easter Sunday, March 24; Whitsunday, May 12.
- Year B. Easter Sunday, March 31; Whitsunday, May 19.
- Year C. Easter Sunday, April 12; Whitsunday, May 31.
- Year D. Easter Sunday, April 23; Whitsunday, June 11.

In the year A, both the Easter business and the Easter reaction are in March. The Whitsunday business and reaction are both in May.

In the year B, the Easter business still falls completely in March; the Easter reaction completely in April. The Whitsunday business and reaction are similar to the year A.

In the year C, Easter business and reaction are in April. Whitsunday business is in May; Whitsunday reaction is in June.

In the year D, Easter business and reaction are in April. Whitsunday business and reaction are in June. Statistically, the turnover of the year A has been postponed for one month.

It is obvious what difficulties arise in comparing monthly trade statistics for these four years. Nor are these illustrations merely theoretical. The year A corresponds with the year 1940; the year B was 1929; the year C was 1925, and the year D almost corresponds with the year 1930.

The importance of these factors is shown in the accompanying chart of chain store sales of tea and coffee in Germany for the years 1929 and 1930.

V

Modern agitation for calendar reform has resulted chiefly from economic and social needs. Among the reasons usually given for a revision of the calendar are the requirements of statisticians, with particular reference to the statistics of industry. It has even been charged that calendar reform is chiefly inspired "*ad majorem statisticæ gloriam*"—to the greater glory of statistics.

Oddly enough, however, statistical experts have hitherto shown relatively little interest in calendar reform. An official inquiry directed to the statistical offices of the states and cities of Germany showed that five-sevenths of the answering offices approved calendar reform as "necessary"; one-seventh thought it "desirable," while the remaining one-seventh thought it "unnecessary."

Certainly many calendrical errors can be corrected by the careful statistician. Recently, for instance, the Berlin Transportation Company raised their fares, and considerable publicity was forthwith given to a decline in the number of persons transported in February as compared with January (prior to the increase). Really there had been no decrease in transportation, the only difference being in the number of days of the months.

On account of the wide use nowadays of statistical comparisons in publicity, it is obviously wise to make statistics as simple and free of error as possible. Therefore there can be no doubt that a more efficient arrangement of the calendar would be a benefit.

Auxiliary calendars, which aim at quick comprehension and comparison of management figures, are now being used in some business concerns. But the usefulness of such auxiliary calendars is probably very limited even in private business. They are only makeshifts and cannot eliminate many of the defects of the civil calendar.

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ILLUSTRATIVE of the widespread organizational interest in calendar reform among trade and professional societies, the annual convention of the American Association of Engineers, meeting in Washington in September, decided to appoint a special committee for the purpose of making a study of calendar revision "with particular reference to the engineering professions."

This action, following the lines adopted in the past by the American Bar Association, the International Astronomical Union, the American Statistical Association, and many other notable organizations, indicates the importance which is attached by professional and trade groups to considering the proposals for calendar revision from the special viewpoints of their own fields and activities.

At the convention of Engineers, speakers from the floor who supported the resolution and advocated calendar reform included the President, Erle E. Ramsey of Oklahoma City; the Secretary, M. E. McIver of Chicago; the Director-at-large, H. A. Wagner of Chicago and Mayer, Ariz.; and a former president, James H. Griffin of the New York City Board of Transportation.

The resolution passed by the convention, which will undoubtedly serve as a model for other organizations of similar character, was as follows:

"WHEREAS, proposals for the revision of the present calendar are now being internationally considered, with a view to inaugurating a change beginning with the year 1939; and

"WHEREAS, a number of members of the American Association of Engineers are interested in these proposals and favor at least a moderate revision of the present calendar; and

"WHEREAS, any change in the present calendar will be a matter of concern and importance to the engineering professions:

"BE IT RESOLVED, that the President appoint a special committee to make a study of the subject, with particular reference to the engineering professions; and

"THAT this committee be requested to prepare a report for submission to the membership and for discussion at the next annual convention."

EXCERPTS AND REVIEWS

Improved System

(Extract from article in *The Society of Industrial Engineers Bulletin*, January, 1930)

IF ONE-TENTH of the energy that is being constantly spent by the business world in inventing schemes for arranging and putting up with the present impractical calendar, and division of the day for their individual needs, were spent toward improving and changing the calendar and division of the time in general, I believe that these reforms would become a fact in the very near future.

Many facts which in the past were denied, many reforms which have been objected to, are today recognized and established. The same is true of calendar reform. Sooner or later calendar reform will be established.

It must be admitted that the length of the solar year cannot be divided into periods without extra days. There is no mathematical possibility of eliminating them. If we would, for example, adopt a five-day week, we would have in an ordinary year an even number of 73 weeks, but again there would remain one extra day in leap year, disregarding the fact that the number 73 precludes further division. Supposing that the seven-day week, which has been used by the greater part of the civilized world for almost 2000 years, is the period that suits our needs the best, and the one which we will retain: in that case we cannot get away from these one or two extra days in a year. What is the best solution for handling them?

This has been an open question in my mind for long years. And I believe that the only solution is to include them in the year as days entirely separate from the regular period of 364 days. Only by adopting this principle we will have and always retain regularity and comparability of periods.

As these extra days would be holidays, the majority of the business world would need no adjustment on their records, for they would have nothing to add to the regular production period of 364 days. The minority, operating on every-day and every-hour basis, would need adjustment only once a year; they would add results

of work and amount of payroll to the regular period. Such adjustments are being done under the difficult present calendar system and can be done much easier under the improved system. There probably is not an absolutely perfect thing in the world, and so never will be the calendar. Yet we can make it as perfect as we can.

Deserves Attention

(From the *Mid-West Hotel Reporter*, July, 1932)

CALENDAR reform is a world-wide movement which deserves the attention of all citizens. Our present methods of figuring time, using a method which never was and never will be entirely satisfactory, has long since outlived its values.

The Hotel Accountants Association of New York City seems to have accepted the thirteen-month calendar as satisfactory. But The World Calendar Association has worked out one that is eminently more workable, and several nations have already gone on record as not favorable to the thirteen-month calendar.

A Distinct Possibility

(From *Export Trade and Finance*, January, 1932)

THERE is an almost justified attitude on the part of the practical business man to steer clear of a discussion of a world calendar as something Utopian. However, The World Calendar prepared by The World Calendar Association, balanced in structure and perpetual in form, is so simple, logical and free from those radical objections of varied character which are associated with reforms of universal application, that its acceptance in a reasonably near future looms as a distinct possibility.

The benefits of a stabilized calendar are so obvious to export traders who supply merchandise for seasonal and holiday needs, or who have obligations falling due on date, which now vary so greatly, that it is needless to dwell on them.

The Journal of Calendar Reform, issued by The World Calendar Association, is well worth the perusal of any business man.

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485 Madison Avenue, New York City

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Membership is based on an active interest in the study of an adequate and effective improvement of the calendar. Owing to lack of space, a large number of names have been omitted. They will be printed in future issues.

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